

**STATEMENT OF DANA TULIS
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U. S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE
SUBCOMMITTEE ON NATIONAL SECURITY, EMERGING THREATS,
AND INTERNATIONAL RELATIONS
COMMITTEE ON GOVERNMENT REFORM
U. S. HOUSE OF REPRESENTATIVES**

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Mr. Chairman and members of the Committee, I am Dana Tulis, Deputy Director of the Office of Emergency Management, within the Office of Solid Waste and Emergency Response at the Environmental Protection Agency (EPA).

I appreciate the opportunity to discuss the steps EPA is taking in response to the Government Accountability Office (GAO) report on Anthrax Detection. I would also like to share with you other activities EPA and our federal partners have underway to protect the Nation after an anthrax attack.

ENVIRONMENTAL SAMPLING STRATEGIES

EPA believes that targeted sampling strategies are valid and necessary for rapidly assessing the likelihood of contamination to ensure that necessary actions can be taken quickly to protect those potentially exposed. When the source of contamination is known, targeted sampling of surfaces is determined with incident-specific details including traffic patterns and airflow within the facility, epidemiological data and forensic information. This was the approach used during the anthrax attacks in 2001, to ensure immediate steps were taken to protect the people potentially exposed. However, when contamination is known to exist, but the source is unknown, the use of statistically-based sampling may improve the probability of detecting contamination.

NATIONAL DECONTAMINATION TEAM (NDT)

EPA has recently completed development of a new, dedicated National Decontamination Team which will provide technical expertise for environmental sampling and decontamination of biological, chemical or radiological weapons of mass destruction. The NDT is comprised of 15 specialized technical experts charged with providing “round the clock” scientific expertise and operational support to On Scene Coordinators, from the initial to the final stages of a chemical, biological or radiological incident. They will provide access to decontamination resources in other government agencies, private industry and academia. They are also developing a National Portfolio of Decontamination Resources, which will be a web-based repository of decontamination information, guidance and databases, and will provide rapid access to state-of-the-art information on all aspects of decontamination.

QUICK REFERENCE GUIDES FOR BIOLOGICAL AGENTS

EPA, working with our colleagues on the National Response Team (NRT), has recently completed four Quick Reference Guides for biological agents, including anthrax. These guides, which are posted on the NRT website at www.nrt.org, offer first responders a quick overview of agent-specific information on toxicity, personal protective equipment, sampling and analytical methods and options for decontamination. Similar guides are underway for a group of chemical agents, and additional guides are planned for the future.

BIOLOGICAL AGENT SAMPLING GUIDELINES

EPA is completing its draft Environmental Sampling Guidelines for Biological Response Plans. The document describes operating procedures and method descriptions for environmental sampling and presents a framework for developing a sampling

approach for investigations involving biological agents. Because incident and agent characteristics may vastly differ, the document discusses a number of available sampling methods and factors to be considered in selecting the best method for the specific situation. The method descriptions include a method summary; equipment and apparatus; procedure; sample preservation, handling and storage; potential problems and interferences; and quality assurance and control. Having consistent operating procedures will ensure samples are collected uniformly. The document will soon undergo internal EPA and interagency review.

EPA has also developed a preliminary document describing a number of procedures to be used for sampling anthrax in different environmental matrices. This document, titled Standardized Procedures for the Collection of *Bacillus anthracis* in Environmental Matrices, is currently in draft form and is undergoing peer review within EPA and the Centers for Disease Control (CDC).

BIOWATCH AND CONSEQUENCE MANAGEMENT PLANNING

Development of Biological Sampling Guidelines is being conducted in coordination with the multi-agency effort to improve the guidance for consequence management sampling strategies for the BioWatch program, in which EPA also plays an active role. Under BioWatch, the Department of Homeland Security (DHS) utilized the existing air monitoring network that EPA operates through grants to states and local governments. Air monitors capable of detecting a number of biological agents have been installed in outdoor and indoor locations in major cities across the United States. Over the past two years, our emergency response staff have been working with local BioWatch Advisory Committees to develop consequence management plans that identify follow-up sampling locations and strategies, including federal, state and local roles and

responsibilities, should a positive BioWatch signal occur. EPA also assisted in exercising these plans.

In a related effort, EPA has been an active partner in Lawrence Livermore's development of sampling plans for consequence management of a biological warfare event at the San Francisco International Airport. These comprehensive plans identify potential sampling zones and potential places and things to sample within zones. They also offer sampling plan templates and clearance sampling strategies. This important work is a model for other airports and transportation facilities, and we intend to continue the partnership by developing similar plans for another airport.

ENHANCED BIOLOGICAL SAMPLING METHODS

While GAO has noted that sampling methods for anthrax have not been validated, EPA is working closely with our colleagues in DHS, Department of Defense (DOD), CDC, and other agencies to address this issue. Methods validation is a long and complex process. First, procedures are developed and documented, and existing techniques are optimized and standardized. Detailed procedures are developed to ensure methods can be used consistently. The biological sampling guidelines I mentioned earlier constitute EPA's effort to fulfill those first steps.

Next, initial validation studies are done to verify that the method performs acceptably, data are statistically analyzed, and preliminary performance assessments are conducted. EPA is currently participating in two sampling efficiency projects with CDC/NIOSH, DHS, Sandia National Laboratory, and the U.S. Army at Dugway Proving Ground. These studies evaluate the efficiency of surface sample methods for collection of anthrax spores on porous and non-porous surfaces. Both studies are designed to provide a robust scientific and statistical evaluation of current swab, wipe, and vacuum sample

collection methods for anthrax spores. The study with CDC and Dugway Proving Ground includes a multiple lab validation study to evaluate the effectiveness of the laboratory protocols used to analyze the samples.

The next step in validating methods is to conduct a multi-laboratory study to ensure that the method produces consistently repeatable results. The data are statistically analyzed, final performance assessments are completed, and the method is finalized, including determination of quantitative quality control criteria. Once these steps are implemented, we will enter into the next stage of validation for any current anthrax sample collection methods.

We are also working with our partners to evaluate new sampling methods. EPA is currently evaluating the use of laser-induced breakdown spectroscopy for detecting anthrax spores in suspicious white powders. This promising new technology will provide real-time in situ measurements with little to no sample preparation. It is relatively cost-effective, simple to operate, and easy to decontaminate. We are closely following CDC's work on resuspension of anthrax spores and a bio-aerosol sampler, Lawrence Livermore's work in developing rapid viability methods for building restoration, and Sandia's evaluation of spore viability analysis by flow cytometry following chlorine dioxide fumigation. Finally, in support of DHS, CDC and other agencies, EPA will be a co-sponsor of the second national bio-sampling workshop in New York this October.

ENHANCED LABORATORY ANALYTICAL METHODS AND CAPACITY

GAO noted that extensive environmental sampling efforts can strain available laboratory capacity, and they suggested that laboratory capacity can be increased. EPA and other agencies are taking a number of interim steps to address the need to increase capacity. In addition, the FY 2007 President's Budget requests funding to establish an

Environmental Laboratory Response Network Program within EPA to increase environmental laboratory capacity.

To fulfill its responsibilities, EPA continues to address these issues through its Homeland Security Laboratory Response Workgroup. The workgroup is actively working with all ten EPA Regional Laboratory Centers; cross-program chemical, biological and radiological technical experts; regional and local emergency response personnel; and administrative personnel to design a fully functional environmental lab response network (eLRN). The workgroup also analyzed five of the White House Homeland Security Council's Scenarios to determine the national need and the gap between supply and demand.

In 2004, EPA and CDC worked closely together to clarify roles and responsibilities of each Agency. During 2005, EPA and CDC worked closely with the White House Homeland Security Council to include all other federal agencies with existing or developing networks. This effort is known as the Integrated Consortium of Laboratory Networks. The Consortium is currently addressing a wide range of technical and planning issues ranging from consistency in the use of sampling and analytical methods across the agencies participating in the network to scenario planning and laboratory needs.

Progress has also been made in developing an All Hazard Receipt Facility (AHRF), designed for screening purposes to protect laboratory personnel. With support and funding from DHS, the design is complete and units will be deployed to EPA's Region 1 lab and the New York State Health Laboratory this year for testing and evaluation.

In assessing the nation's laboratory capacity, one of the more important areas needing improvement was standardization of methods used by laboratories analyzing environmental samples. To determine national capacity, EPA developed a compendium of existing laboratories which includes their capabilities for chemical, biological and radiological analyses. We also developed the Standardized Analytical Methods for Use during Homeland Security Events (SAM), which identifies those methods that would be used to determine the presence and concentrations of a chemical, biological, or radiological agent in an environmental sample. The SAM document, developed in 2004, was expanded and updated in September of 2005 to increase the list of agents and to update the methodologies.

TEST METHODS FOR EVALUATING EFFICACY OF PESTICIDES

EPA is advancing the science of test methods and surrogates used to evaluate the efficacy of antimicrobial pesticide products against spore-forming bacteria, most notably *B. anthracis*. This research is critical to the regulation of sporicidal pesticide products under the Federal Insecticide, Fungicide and Rodenticide Act. Working in collaboration with the Food and Drug Administration, DOD, and other federal laboratory partners, EPA has led an effort to evaluate, improve, and validate qualitative and quantitative test methods. We have already completed improvements to the current EPA standard test method, selected a quantitative method for further study, and evaluated surrogates for *B. anthracis*. We have also initiated research on additional pathogenic bacteria *Clostridium*, *Yersinia pestis*, and *Francisella tularensis*. A ten-laboratory validation of the selected quantitative method will be launched this summer. We are also preparing for new research on antimicrobial efficacy on additional indoor surface materials and new research on unique pesticide formulations such as gases and foams.

ENHANCED BIO-DECONTAMINATION AND DISPOSAL TECHNOLOGIES

EPA is building on experience to date in crafting a decontamination research program to find faster, cost-effective methods for recovering after an anthrax or other type of biological attack. We have completed a survey of available decontamination methods and are currently working closely with vendors of chlorine dioxide and vaporized hydrogen peroxide to optimize fumigant procedures for decontaminating buildings. Both the timeline and costs for decontaminating anthrax have reduced dramatically as we continue to refine and enhance available decontamination methodologies. Use of tenting to seal a building prior to fumigation has proven to be far more efficient than the sealing strategies used for contaminated postal facilities. The use of chlorine dioxide in eliminating mold in buildings in the hurricane ravaged Gulf States will also be applicable to anthrax fumigation.

We are evaluating portable chlorine dioxide systems and also looking at the use of bacteriophage systems as a potential decontamination alternative. Research is underway on fumigant reaction kinetics – taking a closer look at how a fumigant penetrates different types of materials, how it decomposes, and what types of by-products are left behind. We're also looking at how fumigants behave at different concentrations, temperatures, relative humidity and contact times, as well as material demand and materials compatibility.

Waste disposal is a critical component of an anthrax response that is often overlooked. EPA's research agenda in this area includes thermal destruction research, a portable gasifier project, and evaluation of autoclave waste sterilization. We are studying agent destruction and emissions in incinerators, and also taking a look at what happens to biologically contaminated wastes that are disposed of in landfills. Finally, we have

created a Disposal Decision Support Tool for decontamination wastes that addresses waste packaging and transportation issues, and also identifies thermal treatment locations and other types of disposal sites.

CONCLUSION

We appreciate the Committee's interest and GAO's efforts to identify ways to improve the Nation's ability to respond effectively to biological incidents, including anthrax. EPA is working closely with other federal agencies to improve sampling and analytical methods, address national laboratory capacity, and refine and improve decontamination and disposal technologies. We believe we have taken significant steps in these areas and we look forward to continued collaboration in the future.

